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Quick Start Guide

Rockwell ControlLogix / CompactLogix PLC
Connecting to
Omron 3G3MX2 AC Drive with EtherNet/IP

Revision 1.01

08/04/2011

Section 1: Introduction

This document details the steps necessary to connect an Omron 3G3MX2 AC Drive configured with a 3G3AX-MX2-EIP-A EtherNet/IP adapter to an Allen-Bradley ControlLogix or CompactLogix PLC. For the purposes of this document, a CompactLogix PLC will be used, but a ControlLogix PLC is nearly identical in the steps required to make a connection.

For more detailed instructions regarding the operation of the 3G3MX2 AC Drive and the 3G3AX-MX2-EIP-A EtherNet/IP adapter, please refer Omron manual numbers I570 and I36I.

Goal: A connection will be established between a 3G3MX2 and a CompactLogix in the following steps, using the Basic Speed Control IO Assemblies (Output Assembly 20, Input Assembly 70). A sample program is also provided to ramp up / down the frequency of the AC Drive from the PLC ladder program.

Section 2: Setup

1. Mount the 3G3AX-MX2-EIP-A EtherNet/IP adapter on the 3G3MX2 AC Drive.
2. Connect the 3G3MX2 to an Ethernet switch using an Ethernet cable.
3. Apply power to the 3G3MX2 AC Drive.
4. Connect the CompactLogix to an Ethernet switch using an Ethernet cable.
5. Apply power to the CompactLogix.
6. Apply power to the Ethernet switch.

   Note: A motor may be connected to the 3G3MX2 AC Drive, but this is not necessary for this example, as the commanded frequency is displayed on the 3G3MX2 LCD display.

Section 3: AC Drive and EtherNet/IP Adapter Configuration

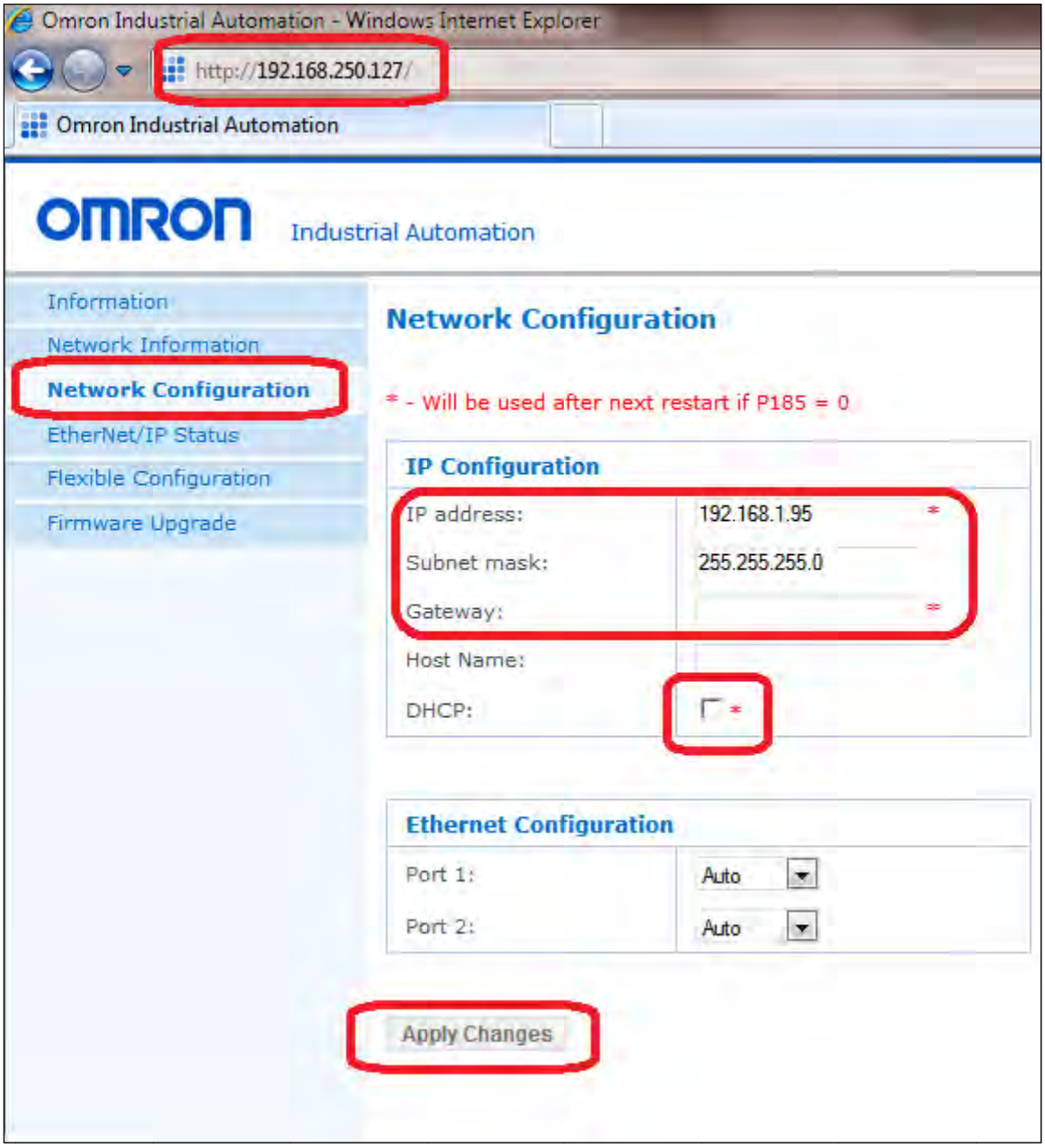
Parameter Configuration: Configure the following parameters in the 3G3MX2. The parameters listed below are those that are changed from factory defaults.

Parameter Number	Value	Description
A001	**4**	**Frequency Source (4 = Option Board)**
A002	**4**	**Run Command Source (4 = Option Board)**
P048	**2**	**AC Drive Action on Idle Mode (2 = Ignore)**
B037	**0**	**Display All Parameters**
F002	**1**	**Acceleration Time**
F003	**1**	**Deceleration Time**

IP Address Configuration:

1. On the 3G3MX2 AC Drive, set **P185** to **127**. This configures the IP address of the EtherNet/IP adapter as 192.168.250.**127**.
2. Cycle power to the 3G3MX2 AC Drive, allowing the DC bus to fully discharge.
3. Set the IP Address on the **PC** to 192.168.250.1.
4. Using a Web Browser, navigate to http://192.168.250.127.

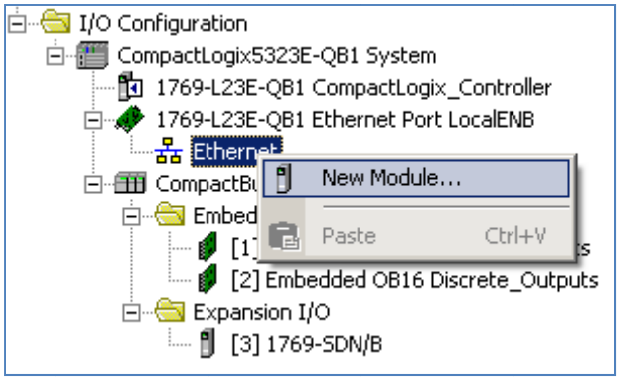
5. On the Network Configuration tab, make the settings shown, and click '**Apply Changes'**.



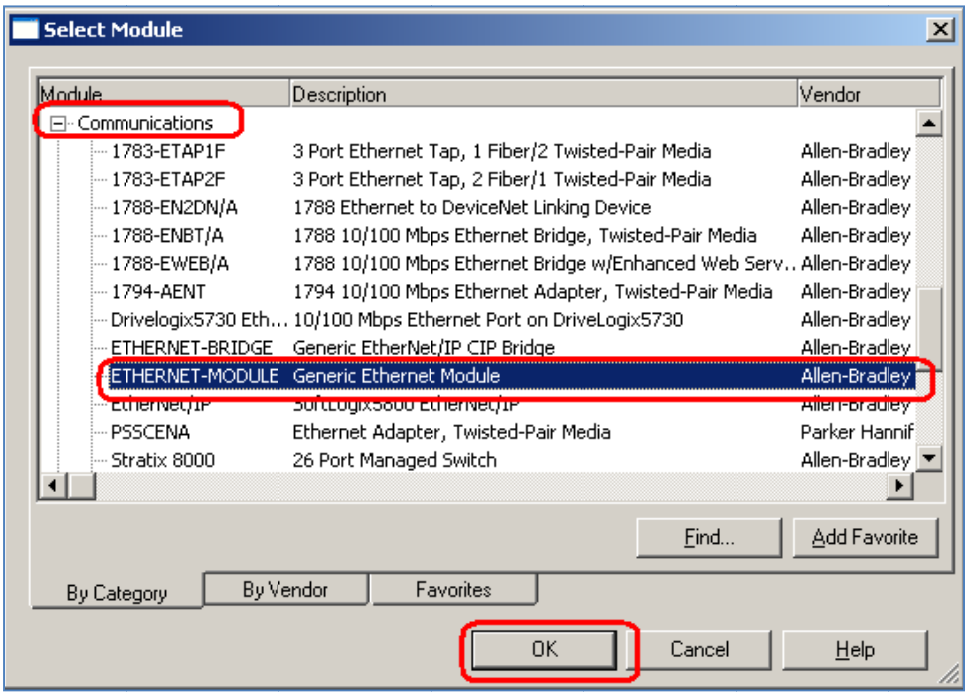
6. On the 3G3MX2 AC Drive, set **P185** to **0**, then cycle power to the 3G3MX2 AC Drive, allowing the DC Bus to discharge. This applies the IP Address set from the Web Browser.

Section 4: Establishing the Connection

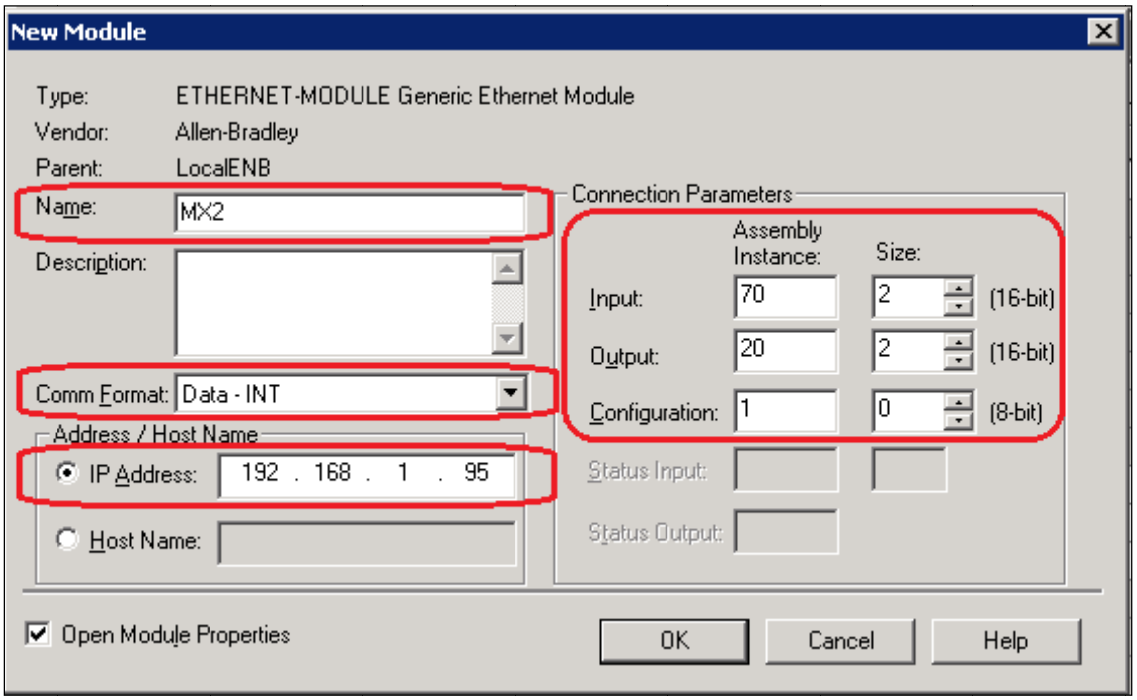
1. Verify that all the components are connected via Ethernet, and that power is turned on to the devices.
2. Open the project file or create a new project file for the CompactLogix in RSLogix 5000.
3. Configure the IP address of the CompactLogix as 192.168.1.77 using RSLogix 5000.
4. Right click on the Ethernet module in the CompactLogix, and click **New Module**.



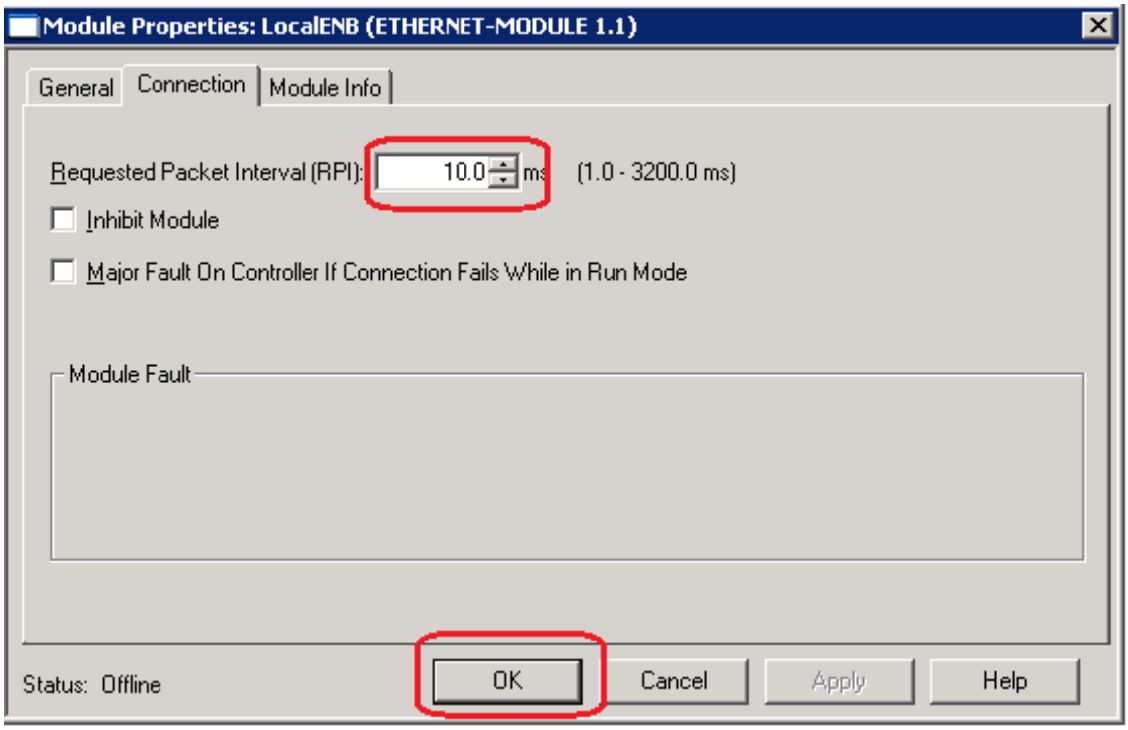
5. In the **Communications** group, select "**ETHERNET-MODULE Generic Ethernet Module"**, and click **OK**.



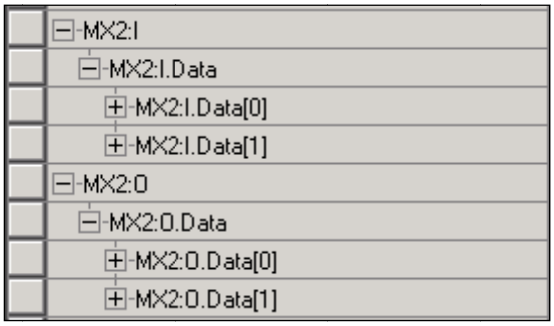
6. Configure the connection to the 3G3MX2 as shown below in the New Module dialog box, and click **OK**.



7. Set the RPI at 10.0 ms, which is the default, and click OK.



Tags will have been created automatically for the 3G3MX2 connection as shown below.

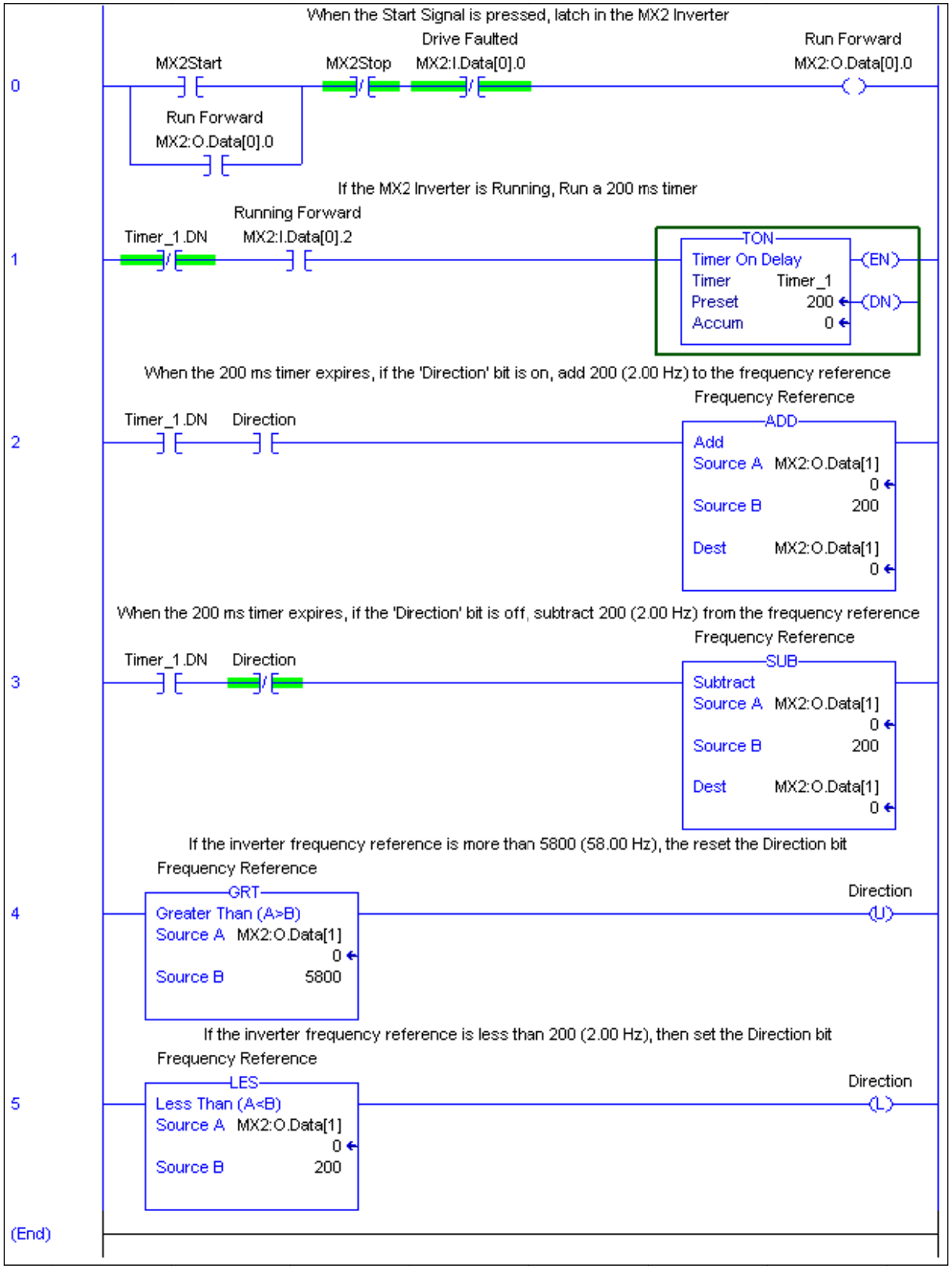


8. Create the following comments in the Controller Tags section of RSLogix 5000.

⊟-MX2:I		AB:ETHE...	
⊟-MX2:I.Data	Decimal	INT[2]	
⊟-MX2:I.Data[0]	Decimal	INT	
MX2:I.Data[0].0	Decimal	BOOL	Drive Faulted
MX2:I.Data[0].1	Decimal	BOOL	
MX2:I.Data[0].2	Decimal	BOOL	Running Forward
MX2:I.Data[0].3	Decimal	BOOL	
MX2:I.Data[0].4	Decimal	BOOL	
MX2:I.Data[0].5	Decimal	BOOL	
MX2:I.Data[0].6	Decimal	BOOL	
MX2:I.Data[0].7	Decimal	BOOL	
MX2:I.Data[0].8	Decimal	BOOL	
MX2:I.Data[0].9	Decimal	BOOL	
MX2:I.Data[0].10	Decimal	BOOL	
MX2:I.Data[0].11	Decimal	BOOL	
MX2:I.Data[0].12	Decimal	BOOL	
MX2:I.Data[0].13	Decimal	BOOL	
MX2:I.Data[0].14	Decimal	BOOL	
MX2:I.Data[0].15	Decimal	BOOL	
⊞-MX2:I.Data[1]	Decimal	INT	Frequency Monitor

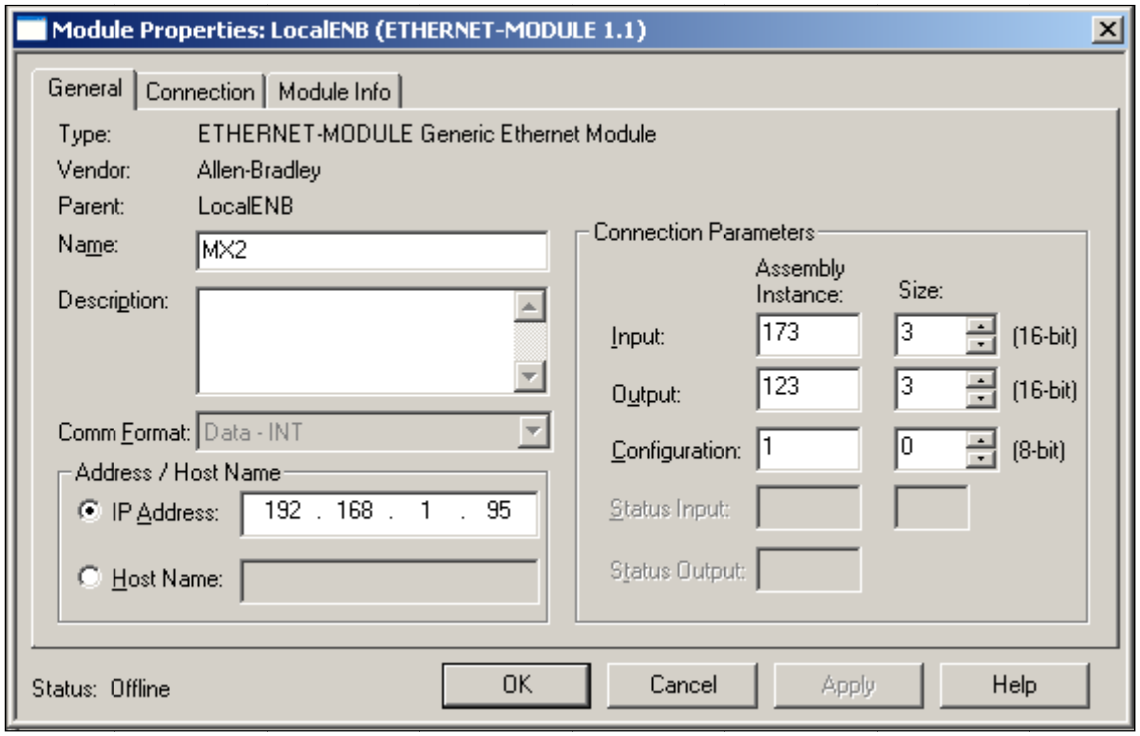
⊟-MX2:O		AB:ETHE...	
⊟-MX2:O.Data	Decimal	INT[2]	
⊟-MX2:O.Data[0]	Decimal	INT	
MX2:O.Data[0].0	Decimal	BOOL	Run Forward
MX2:O.Data[0].1	Decimal	BOOL	
MX2:O.Data[0].2	Decimal	BOOL	Reset Error
MX2:O.Data[0].3	Decimal	BOOL	
MX2:O.Data[0].4	Decimal	BOOL	
MX2:O.Data[0].5	Decimal	BOOL	
MX2:O.Data[0].6	Decimal	BOOL	
MX2:O.Data[0].7	Decimal	BOOL	
MX2:O.Data[0].8	Decimal	BOOL	
MX2:O.Data[0].9	Decimal	BOOL	
MX2:O.Data[0].10	Decimal	BOOL	
MX2:O.Data[0].11	Decimal	BOOL	
MX2:O.Data[0].12	Decimal	BOOL	
MX2:O.Data[0].13	Decimal	BOOL	
MX2:O.Data[0].14	Decimal	BOOL	
MX2:O.Data[0].15	Decimal	BOOL	
⊞-MX2:O.Data[1]	Decimal	INT	Frequency Reference

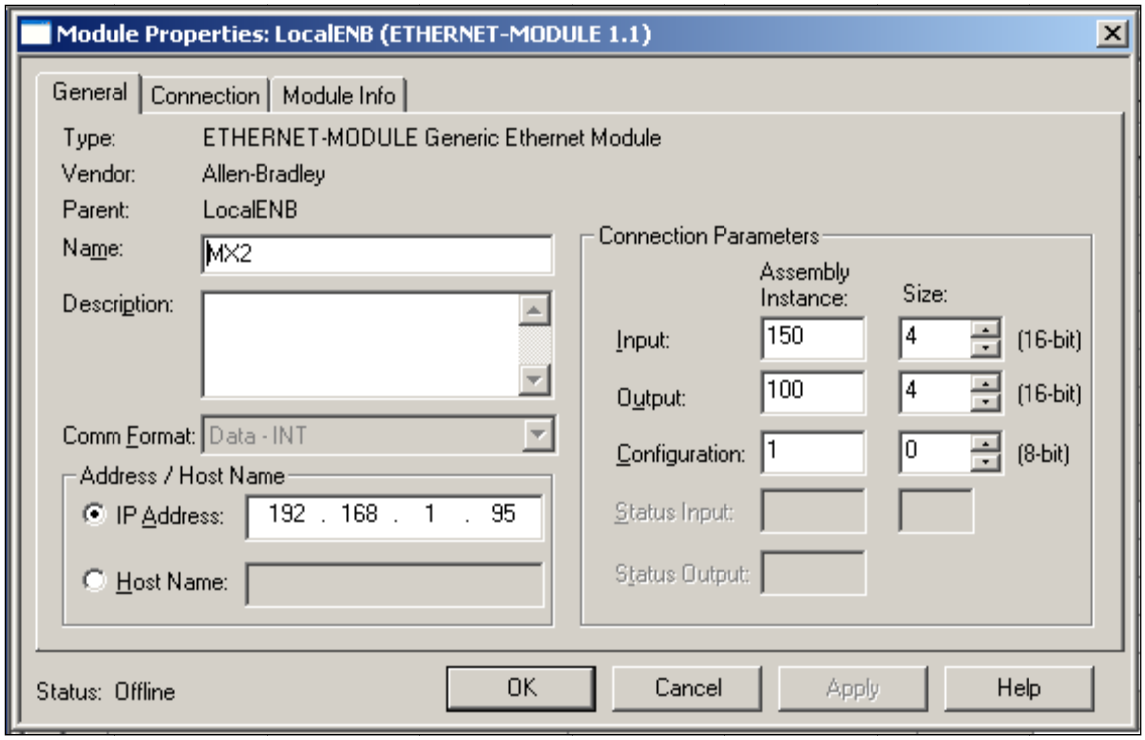
9. Create the following program, which will continuously ramp the frequency from 0 Hz to 60 Hz to 0 Hz. Create ‘MX2Start’ and ‘MX2Stop’ as additional Tags.

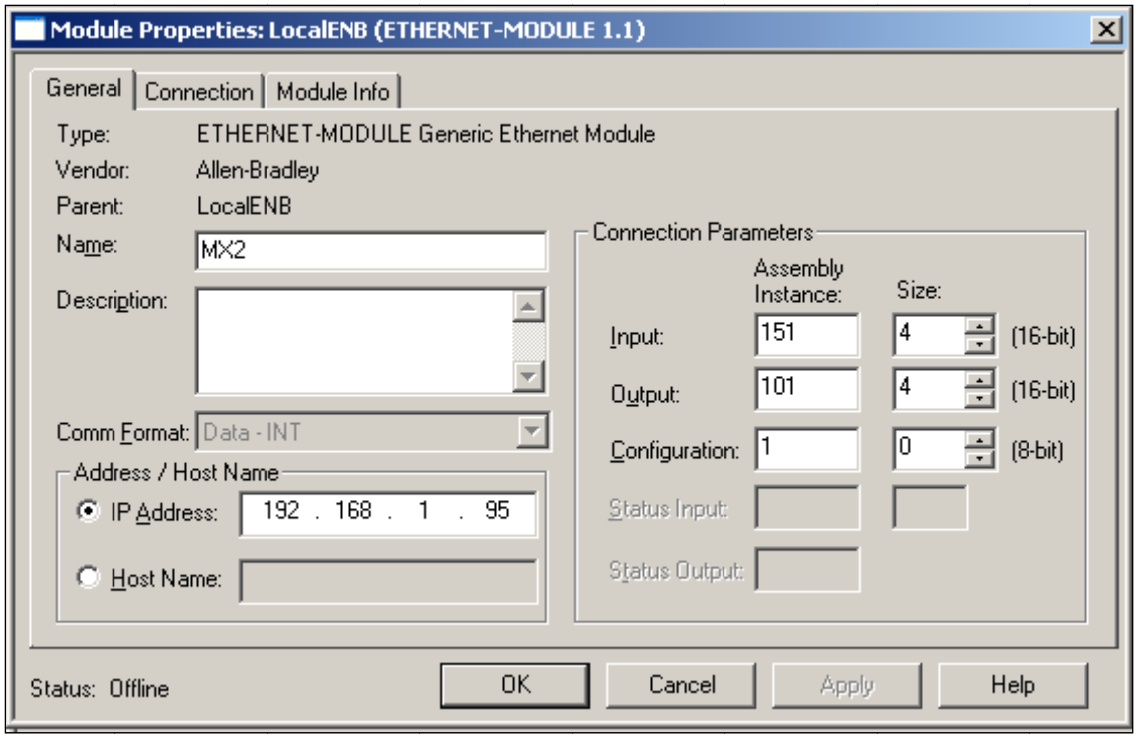


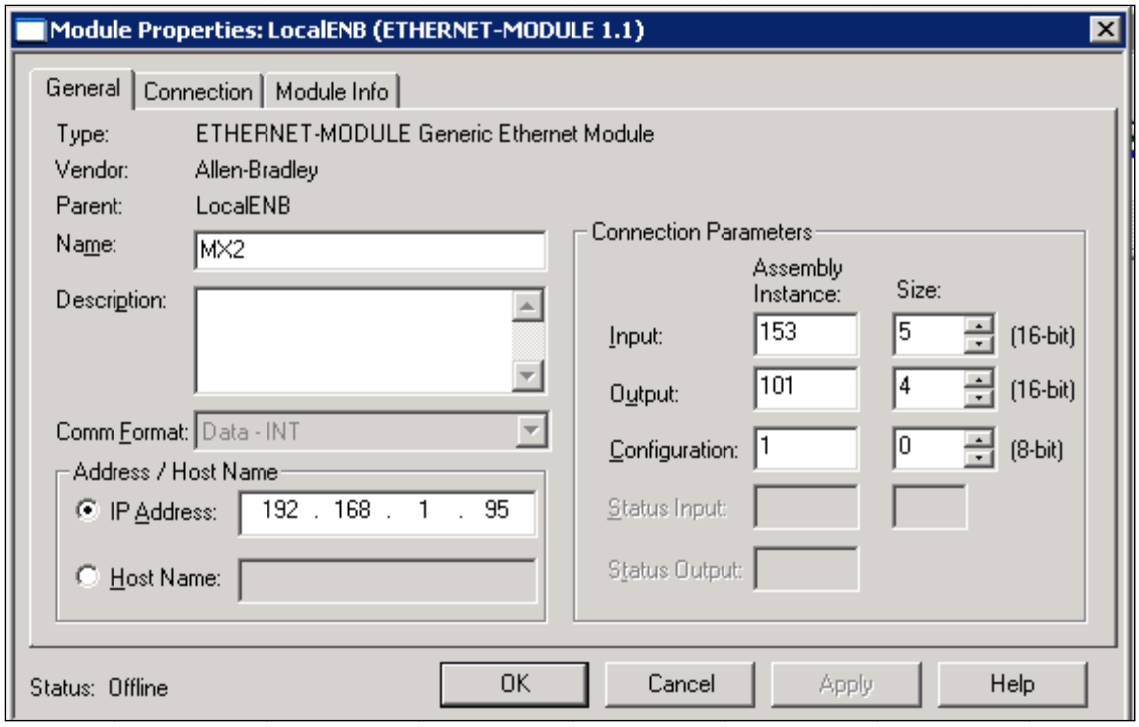
10. Download the project to the CompactLogix processor using RSLogix 5000.
11. If the 3G3MX2 AC Drive has an error, toggle the MX2:0.Data[0].2 (Reset Error) bit from off → on → off to reset the error, or press the 'Stop / Reset' key on the 3G3MX2 AC Drive.
12. Using RSLogix 5000, toggle the 'MX2Start tag' to start the frequency ramping from 0 Hz to 60 Hz to 0 Hz.

Section 5: Other Connection Assemblies






Module Properties: LocalENB (ETHERNET-MODULE 1.1)
General
Connection
Module Info
Type: ETHERNET-MODULE Generic Ethernet Module
Vendor: Allen-Bradley
Parent: LocalENB
Name: MX2
Description:
Comm Format: Data - INT
Address / Host Name
IP Address: 192 . 168 . 1 . 95
Host Name:
Connection Parameters
Assembly Instance:
Size:
Input: 151 4 (16-bit)
Output: 101 4 (16-bit)
Configuration: 1 0 (8-bit)
Status Input:
Status Output:
Status: Offline
OK
Cancel
Apply
Help


Module Properties: LocalENB (ETHERNET-MODULE 1.1)
General
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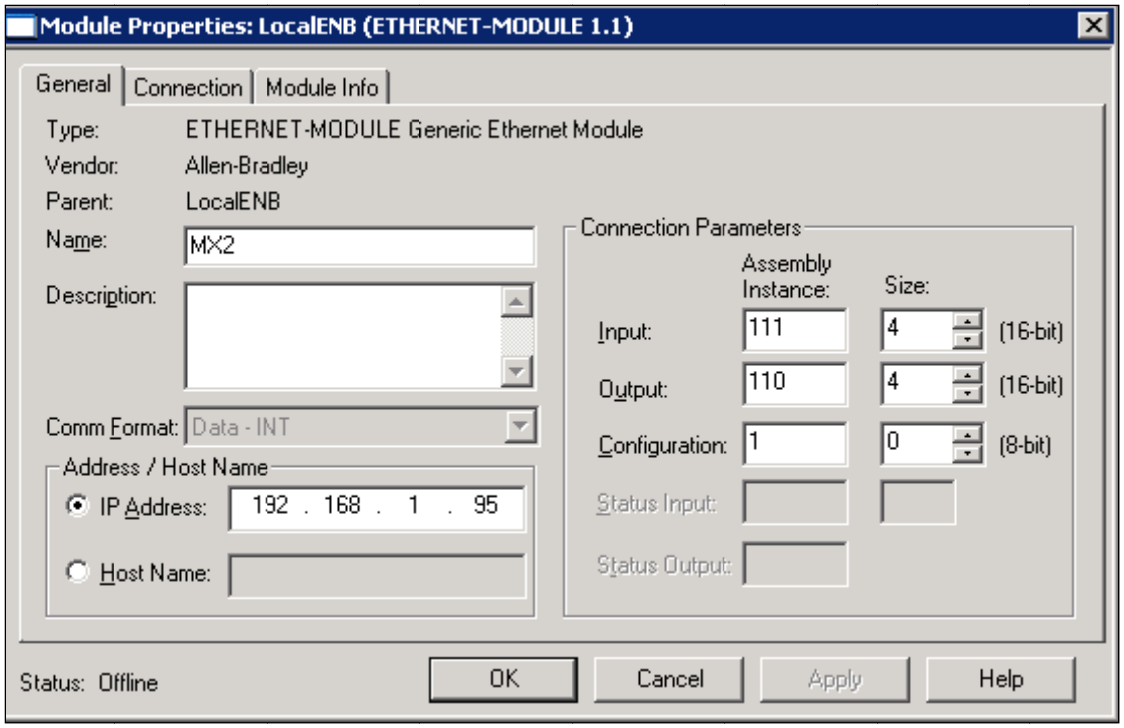
Module Info
Type: ETHERNET-MODULE Generic Ethernet Module
Vendor: Allen-Bradley
Parent: LocalENB
Name: MX2
Description:
Comm Format: Data - INT
Address / Host Name
IP Address: 192 . 168 . 1 . 95
Host Name:
Connection Parameters
Assembly Instance:
Size:
Input: 153 5 (16-bit)
Output: 101 4 (16-bit)
Configuration: 1 0 (8-bit)
Status Input:
Status Output:
Status: Offline
OK
Cancel
Apply
Help


Module Properties: LocalENB (ETHERNET-MODULE 1.1)
General
Connection
Module Info
Type: ETHERNET-MODULE Generic Ethernet Module
Vendor: Allen-Bradley
Parent: LocalENB
Name: MX2
Description:
Comm Format: Data - INT
Address / Host Name
IP Address: 192 . 168 . 1 . 95
Host Name:
Connection Parameters
Assembly Instance:
Size:
Input: 111 4 (16-bit)
Output: 110 4 (16-bit)
Configuration: 1 0 (8-bit)
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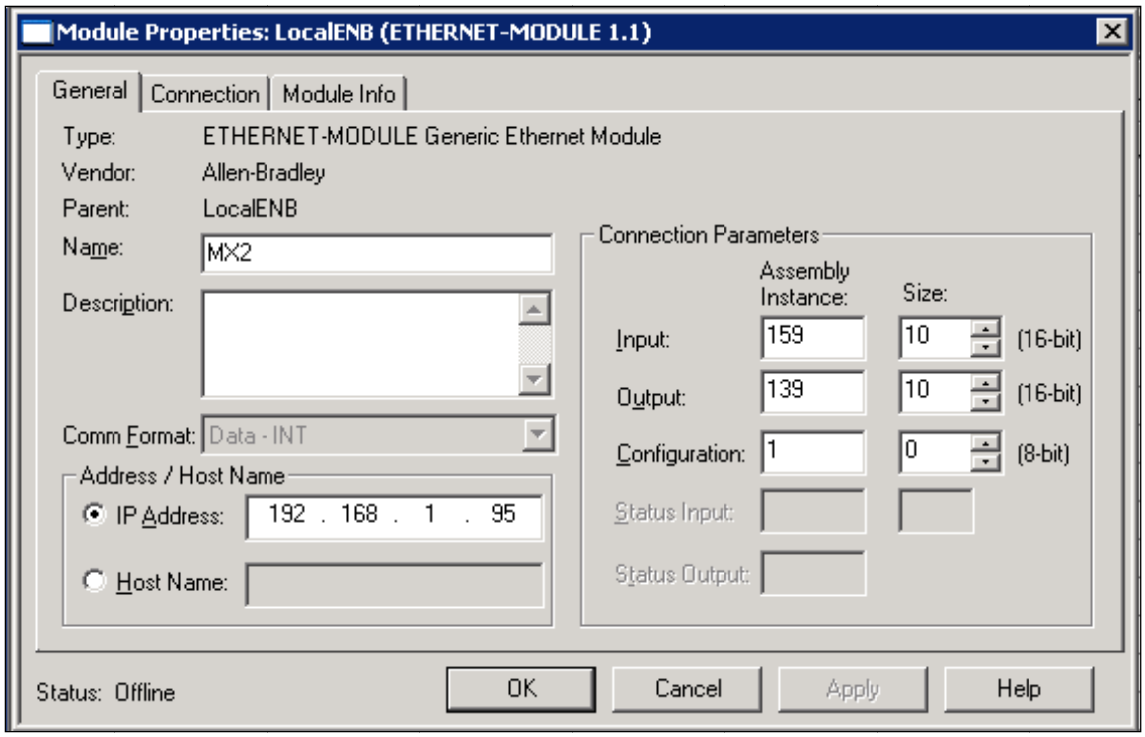
Status Output:
Status: Offline
OK
Cancel
Apply
Help


Module Properties: LocalENB (ETHERNET-MODULE 1.1)
General
Connection
Module Info
Type: ETHERNET-MODULE Generic Ethernet Module
Vendor: Allen-Bradley
Parent: LocalENB
Name: MX2
Description:
Comm Format: Data - INT
Address / Host Name
IP Address: 192 . 168 . 1 . 95
Host Name:
Connection Parameters
Assembly Instance:
Size:
Input: 159 10 (16-bit)
Output: 139 10 (16-bit)
Configuration: 1 0 (8-bit)
Status Input:
Status Output:
Status: Offline
OK
Cancel
Apply
Help

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